

I Claim:

1. An apparatus for proportioning a chemical with a solvent, comprising:
 - 5 a flow measurement apparatus for measuring the flow rate of the solvent;
 - a control unit for calculating the quantity of chemical to be added to the solvent based at least in part on the flow rate of the solvent; and
 - 10 a flow control device for metering the quantity of the chemical added to the solvent.
2. The apparatus for proportioning a chemical with a solvent of claim 1, and further including:
 - 15 a second flow measurement apparatus for measuring the flow of the chemical.
3. The apparatus of claim 1, wherein:
 - 20 the control unit receives input from the flow measurement apparatus; and
 - the control unit controls the flow control device.
4. The apparatus for proportioning a chemical with a solvent of claim 1, wherein:
 - 25 the chemical is a cleaning substance.
5. The apparatus for proportioning a chemical with a solvent of claim 1, wherein:
 - the chemical is a soap.
- 25 6. The apparatus for proportioning a chemical with a solvent of claim 1, wherein:
 - the solvent is water.
7. The apparatus for proportioning a chemical with a solvent of claim 1, wherein:
 - the flow of the solvent varies during the operation of the apparatus.

8. The apparatus for proportioning a chemical with a solvent of claim 1, wherein:
the flow rate of the solvent varies according to the quantity of a plurality of spray
wands which are in operation at any given time.

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9. The apparatus for proportioning a chemical with a solvent of claim 1, wherein:
the flow measurement device is a flow sensor.

10. The apparatus for proportioning a chemical with a solvent of claim 1, wherein:
the control unit is a personal computer.

11. The apparatus for proportioning a chemical with a solvent of claim 1, wherein:
the flow control device is precision pump.

12. The apparatus for proportioning a chemical with a solvent of claim 1, wherein:
the flow control device is a solenoid valve.

13. A method for proportioning a chemical in a vehicle wash system, comprising:
(a) measuring the flow rate of the water;
(b) calculating the flow rate of the chemical necessary to maintain a desired
chemical proportion based at least in part on the flow rate of the water; and
(c) operating a chemical metering apparatus to meter the flow rate of the
chemical into the water.

25 14. The method of claim 13, and further including:
(d) measuring the flow of the chemical to determine that the correct quantity of the
chemical is being dispensed.

15. The method of claim 13, and further including:
30 repeating steps a, b and c during the operation of the vehicle wash system.

16. The method of claim 14, and further including:
repeating steps a, b, c and d during the operation of the vehicle wash system.

5 17. The method of claim 14, and further including:
repeating steps c and d until the desired flow rate of the chemical is achieved.

10 18. The method of claim 13, wherein:
step b is accomplished by a digital control apparatus.

15 19. The method of claim 13, wherein:
step b is accomplished by a personal computer.

20 20. The method of claim 13, wherein:
step b is accomplished using a proportioning algorithm.

25 21. The method of claim 13, wherein:
step b is accomplished using a PID algorithm.

30 22. An apparatus for mixing a chemical with water in a vehicle washing device,
comprising:
water flow measurement means for measuring the flow of water;
calculating means for calculating a desired flow rate for the chemical; and
flow rate controlling means for controlling the flow rate for the chemical.

35 23. The apparatus of claim 22, and further comprising:
chemical flow measurement means for measuring the flow rate of the chemical.

40 24. The apparatus of claim 22, wherein:
the water flow measurement means is a flow sensor.

25. The apparatus of claim 22, wherein:
the chemical flow measurement means is a flow sensor.

5 26. The apparatus of claim 22, wherein:
the flow rate controlling means is a solenoid valve.

27. The apparatus of claim 22, wherein:
the flow rate controlling means is a variable rate pump.

10 28. The apparatus of claim 27, wherein:
the variable rate pump is an air driven pump.

29. The apparatus of claim 22, and further including:
at least one pump for providing the water under pressure.

30. The apparatus of claim 29, wherein:
the pump is an air driven pump.

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